



Automotive
Energy & Power Analysis
Aerospace & Defense
Transportation
General Test & Measurement

838 PNA

User Manual



Re-inventing Data Acquisition



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DEWETRON elektronische Messgeraete GesmbH

Parkring 4

A-8074 Graz-Grambach / Austria

<http://www.dewetron.com>

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1 presentation of instruments

The instrument line 838-PNA has especially been developed for measurements in electrical power grids. The instrument does not have a ventilator which allows the installation in various environments. Its high EMC resistance makes it possible to use this instrument in all network levels.



The model is available in 3 different versions:

model	838-PNA-V	PNA-838-P	PNA-838-W
usage	power quality measurements	power measurements and power quality	power and power quality in wind energy plants
voltage input	4	4	3
electricity input	-	4	3
other input channels			wind velocity, wind

			direction
measured values			
U	x	x	x
I		x	x
P, Q, S, PF, cos Phi		x	x
Q		x	x
frequency	x	x	x
harmonics U	x	x	x
harmonics I	x	x	x
harmonics power	x	x	x
flicker (PSt, Plt)	x	x	x
unbalance	x	x	x
fault recorder	x	x	x
wind velocity, wind direction			x

2 hardware

This chapter gives you hints and explanations to the following topics:

- installation of the measuring instrument
- status bar
- automatic measurement location identification (MLI)
- installation possibilities
- technical data

2.1 installation

Connect the power supply with the measuring instrument and plug the power supply into the power outlet.



Alternatively, you can also energize the instrument with direct current: DC 24 V
This one can directly be connected to the instrument or plugged in via the black input jack.



The network connector NET serves as a connection to a network (Ethernet). Be advised to use this one for the transfer of data either online onto a server or manually onto a notebook.



The connection COM is designed for service purposes and serves as a connection to the PC via a serial cable (RS232) and a terminal programme.



Connection of the measuring signals:

Open the lower cover of the measuring instrument set to the bottom. With the help of measuring lines the measuring signals are brought into the measuring instrument via waterproofed screw connections.



The kind of connection depends on the type of instrument:

838-PNA-V

838-PNA-P
838-PNA-W

2.1.1 838-PNA-V



On the lower side on the right there are the screw terminals for the 4 voltages.

2.1.2 838-PNA-P



On the lower side on the right there are the screw terminals for the 4 voltages.
On the lower side on the left there are the screw terminals for the 4 currents.

Attention! Please, keep in mind that the secondary transducer circle is never open when connecting converters - the converter could get too hot and be damaged!

2.1.3 838-PNA-W



On the lower side on the right there are the screw terminals for the 3 voltages.
On the lower side on the left there are the screw terminals for the 3 currents.

Attention! Please, keep in mind that the secondary transducer circle is never open when connecting converters - the converter could get too hot and be damaged!

UN is used for the connection of the wind velocity sensor.
IN is used for the connection of the wind direction sensor. (+/- 10V).

2.2 status bar

On the upper side of the instrument there is a LED which shows the status of the instrument.



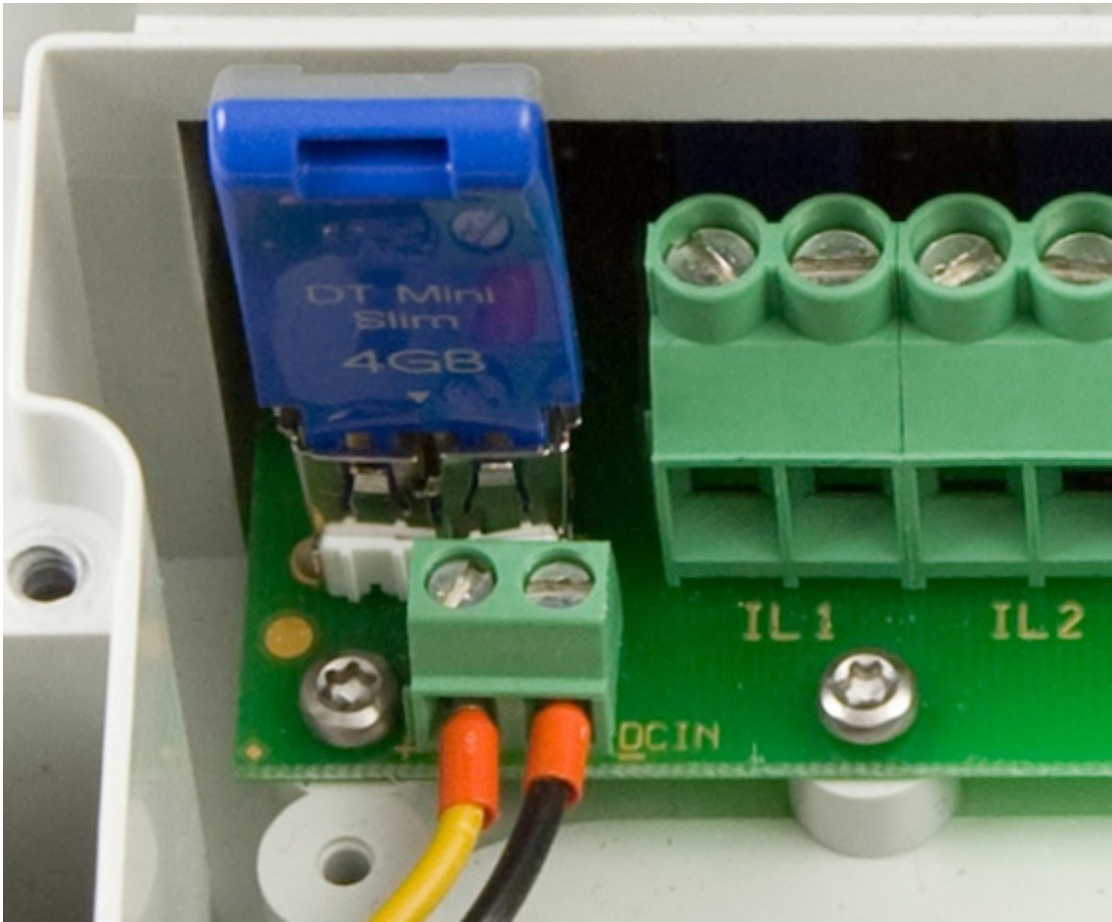
The LED can have the following colours:

dark	the instrument is not activated
red	the instrument is booting
blinking	the instrument is ready for use, configuration
red	mode
green	the instrument is measuring and has not saved any data yet
blinking	the instrument is measuring and has already saved the data
green	

2.3 MLI

In the opening for the screw terminals you find a USB jack on the left which is designed for the MLI technology. MLI means Measurement Location Identification.

Every measurement location is assigned to a USB jack. On this one the measuring instrument saves all the settings. If an instrument is exchanged, then the USB jack has to be exchanged as well. The configuration of the old instrument is automatically transferred to the new one. The measurement can then be continued without interruption and without having to perform a configuration of the measurement or the network settings.



2.4 mounting possibilities

Basically, the instrument has to be mounted upright and onto a plane wall. You can choose between the following possibilities to mount the instrument:

- wall mounting
- counter panel mounting
- DIN rail

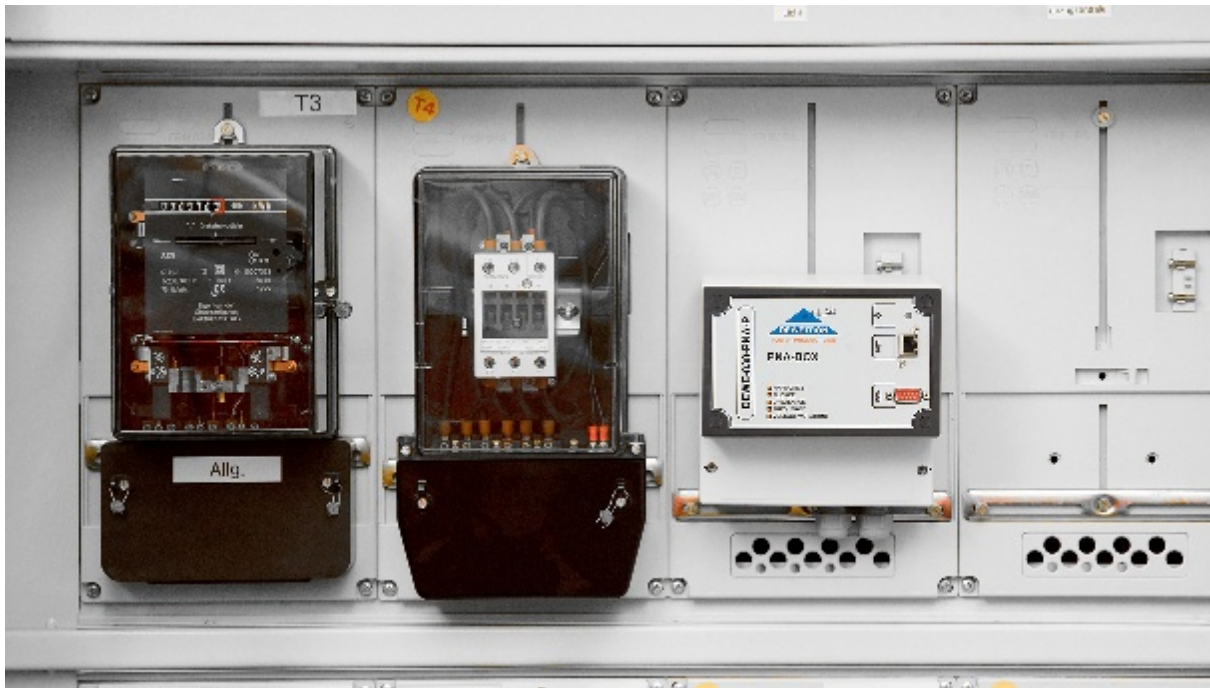
2.4.1 wall mounting

For wall mounting there are several holes on the bottom of the box



2.4.2 counter panel mounting

For mounting on a counter panel use the holes on the bottom and the screw hole in the middle upper part.



2.4.3 DIN rail

For mounting on a DIN rail insert the springs on the back side.



2.5 technical data

	DEWE-838-PNA-V		DEWE-838-PNA-P
Technical Specifications			
Usage	Fix installed		
Voltage levels	LV, MV, HV, industrial grids		
Sampling rate	10 kHz		
Voltage supply	24 V _{DC} internal, 85 - 230 V _{AC} external		
Dimensions (W x D x H)	160 x 166 x 115 mm (6.3 x 6.5 x 4.5 in.)		
Weight	Typ. 1.8 kg (4 lb)		
Mounting Systems			
	Wall mounting, DIN Rail, Counter panels		
Inputs	3*U	4*U, 4*I	
Voltage			
Range	200, 400, 800, 1400 V _{PEAK} 140, 280, 570, 1000 V _{RMS}		
Protection	CAT III 600, CAT IV 300		
Surge (1.2/50)	IEC 61000-4-5: ±4000 V		
Burst (5 kHz)	IEC 61000-4-4: ±4000 V		
Accuracy	< 0.1 %		
Current			
Range	-	5 A _{RMS}	
Protection	-	CAT III 600, CAT IV 300	
Surge (1.2/50)	-	IEC 61000-4-5: ±4000 V	
Burst (5 kHz)	-	IEC 61000-4-4: ±4000 V	
Accuracy	-	< 1 %	
Functions			
Voltage	Yes		
Current	-	Yes	
Frequency	Yes		
Harmonics, Interharmonics	Yes		
Flicker, Unbalance	Yes		
P, Q, S	-	Yes	
PF, cos Phi	-	Yes	
Neutral voltage and current	-	Yes	
Phase + line voltages	Yes		
Reporting tool	PMT		
Time synchronisation	NTP, UDP		
Triggers for fault recording	U _{RMS} Window, U _{RMS} change U phase and/or U line		
	-	P, Q, PF, f, I	
Reporting Standards	EN 50160 IEC 61000-4-2 ITI (CBEMA) DisDip (Unipede)		
Measurement Standards	IEC 61000-4-30 Class A IEC 61000-4-7 Harmonics IEC 61000-4-15 Flicker		
Connection Schematics			
1~	Yes		
3~ star	Yes		
3~ delta	Yes		
3~ star with delta conversion	Yes		
1~ with neutral	-	Yes	
3~ star with neutral	-	Yes	
3~ delta with neutral	-	Yes	
3~ star with delta conversion and neutral	-	Yes	
Protocol Interface			
Configuration with webinterface	Yes		
Offline SQL server with dataloader program	Yes		
Online SQL server PMT	Yes		
IEC 60870-5-104	Option (DEWE-838-Protocol-104)		
Others			
Memory	2 GB		

3 software

The 838-PNA does not need any special software for its operation and configuration.
Start your web browser and insert your name and IP number of the instrument in the address bar.

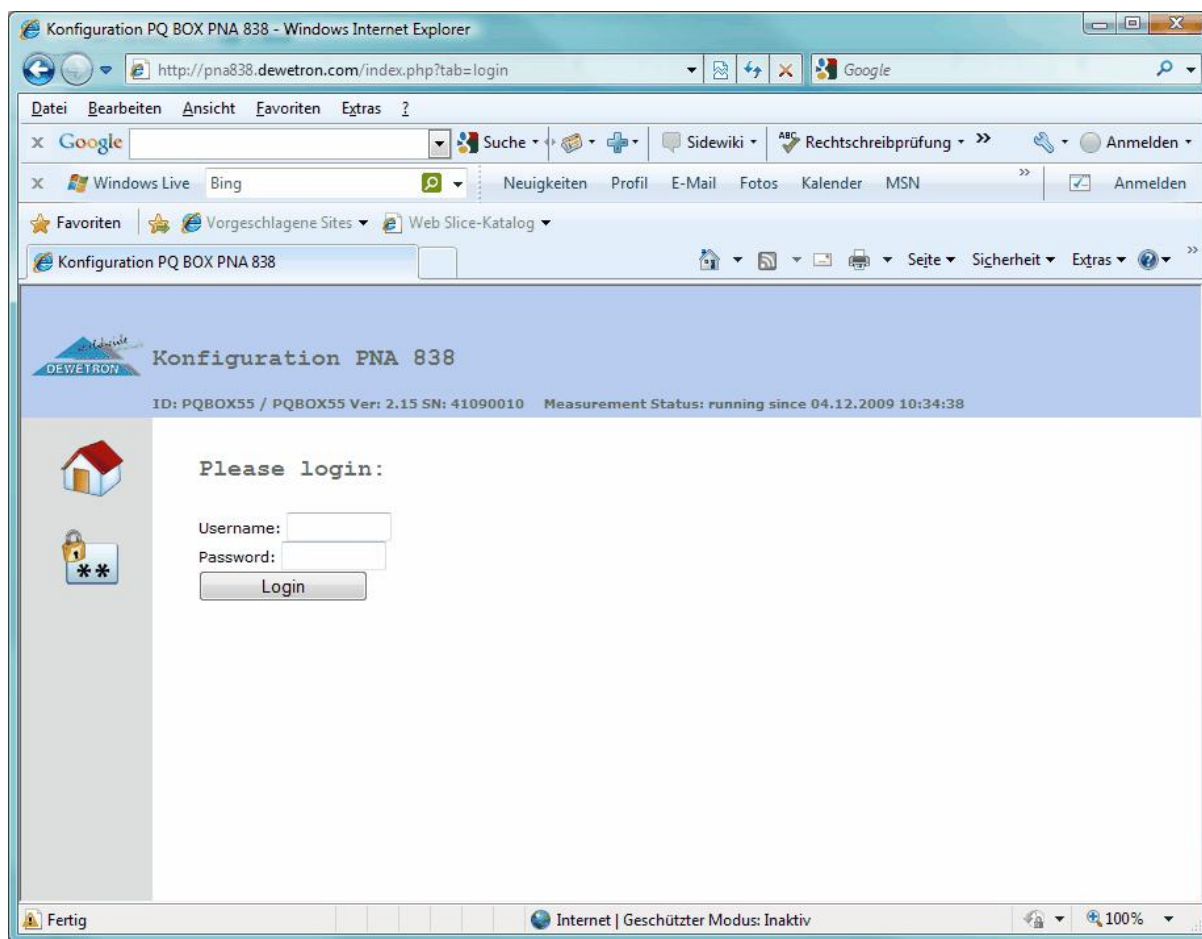
In our case: pna838. dewetron.com

Insert the username and password in the following window:

Usually:

username: "viewer" with password "viewer" in order to view the data

username: "admin" with password "admin" ... in order to view the data and set up the instrument

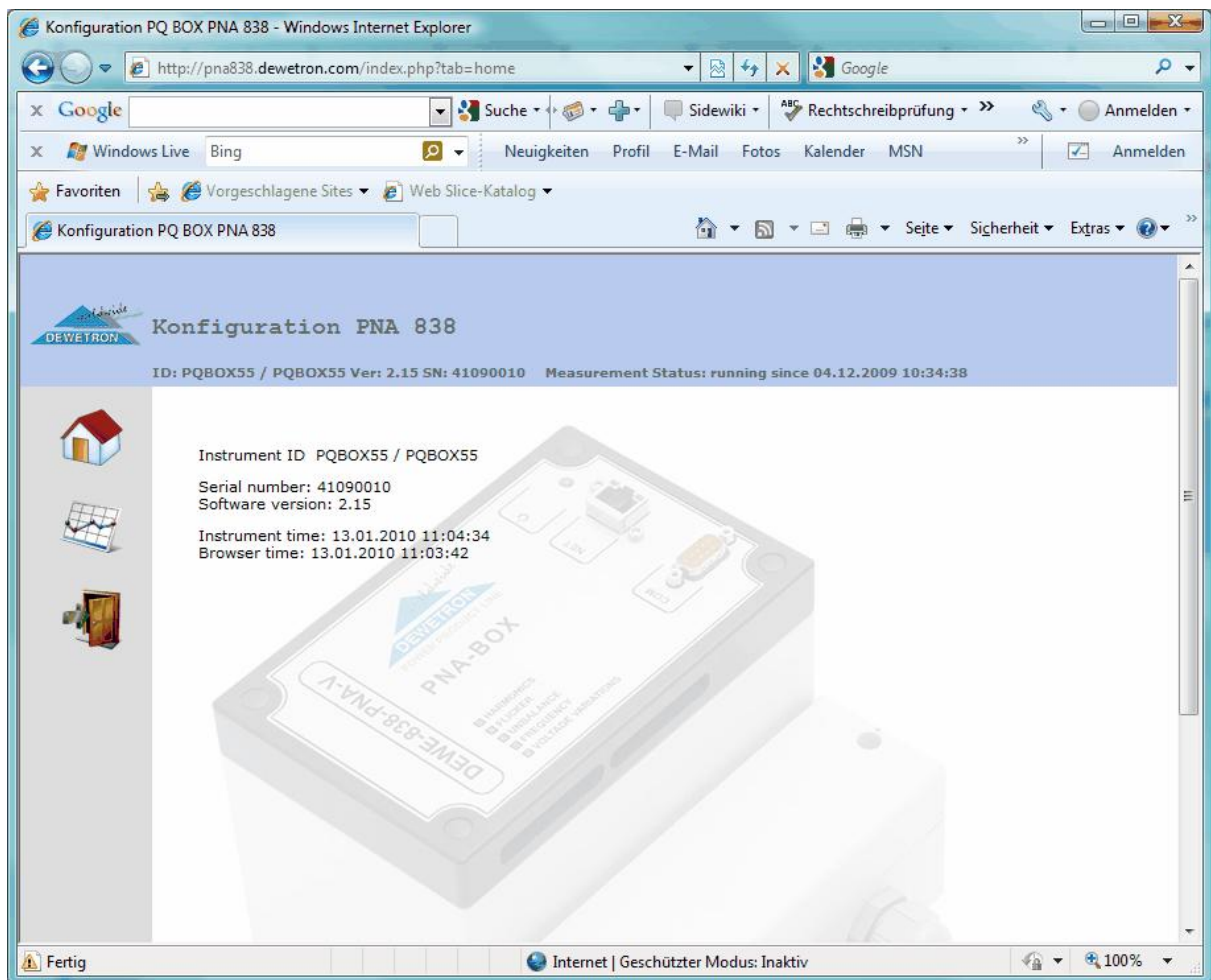


Further features of the instrument:

- data transfer
- data analysis

3.1 viewing the data online

When you are logged in as "viewer", you get the following start screen:



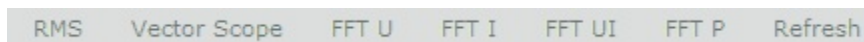
There you have the following possibilities:



...you get to the start screen



...you get to the measured data and obtain the following submenu:



RMS...displays the measured values as numeric values

Vectorscope....the vectorscope of voltages and current

FFT...the various harmonics



...you log out and get to the log in menu

3.1.1 numeric values

Online you receive the following values:

f...frequency

u2_1...value of unbalance

P...total active power

Q...total reactive power

S...total power

U L-E...phase voltage (line to earth)

U L-L...line voltage (line to line)

I...currents

P...active power per phase

Q...reactive power per phase

S...total power per phase

P H1...fundamental active power per phase

Q H1...fundamental reactive power per phase

Phi UI...angle between voltage and current

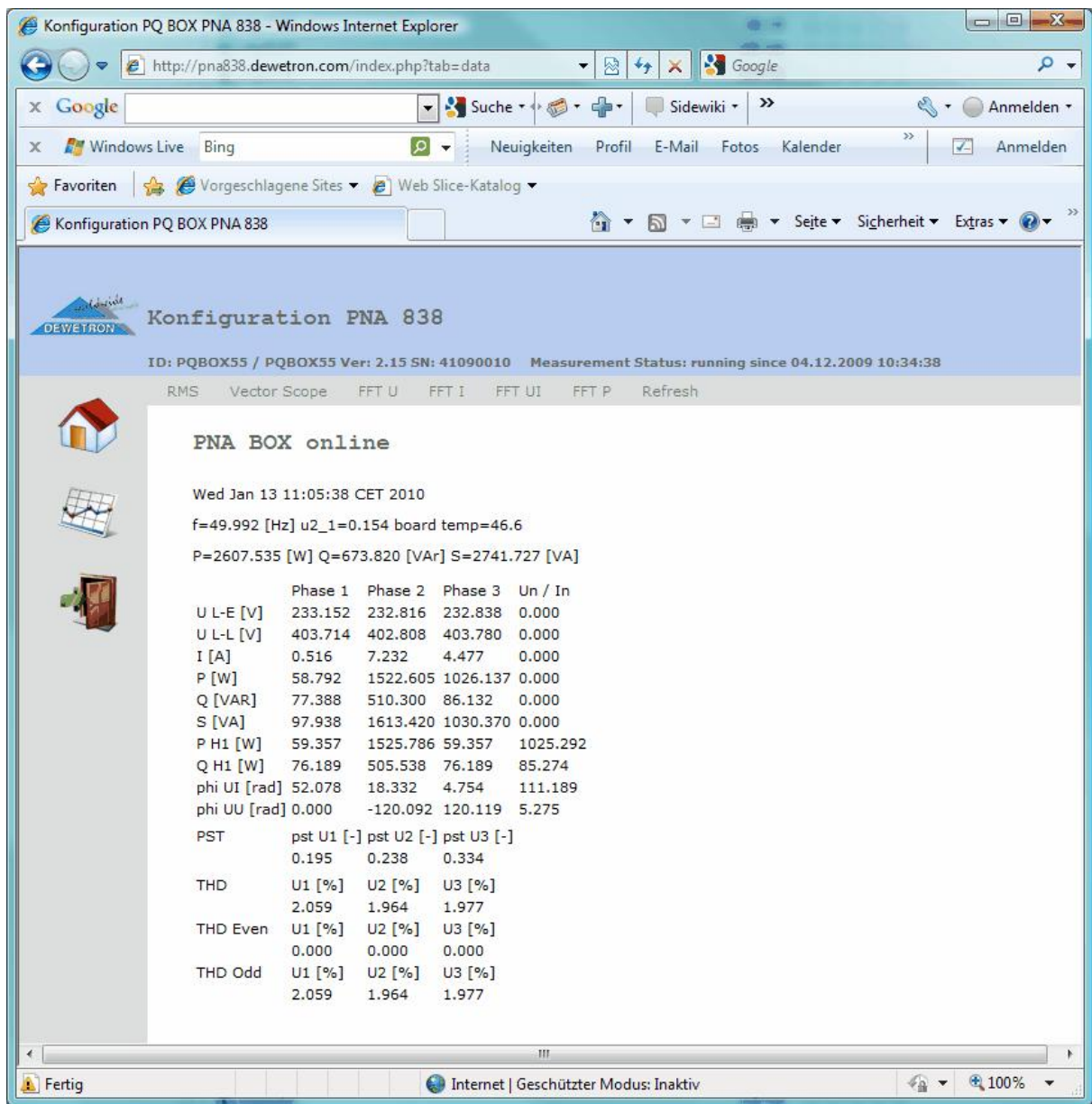
Phi UU...angle of voltages to the fundamental of the first phase

Pst...short-term flicker (IEC 61000-4-15)

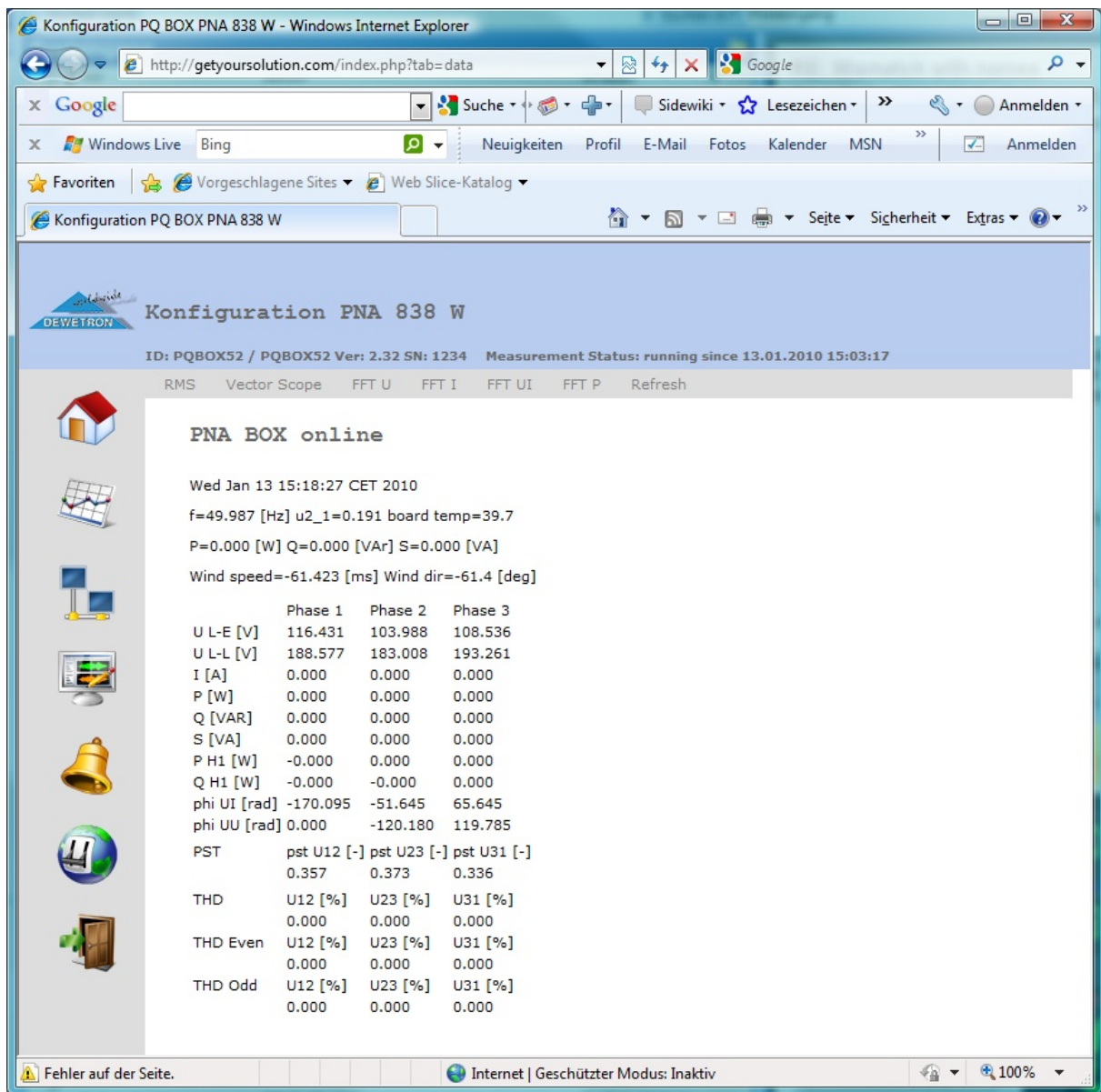
THD...total harmonic distortion

THD even...total harmonic distortion of the even harmonics

THD odd...total harmonic distortion of the odd harmonics

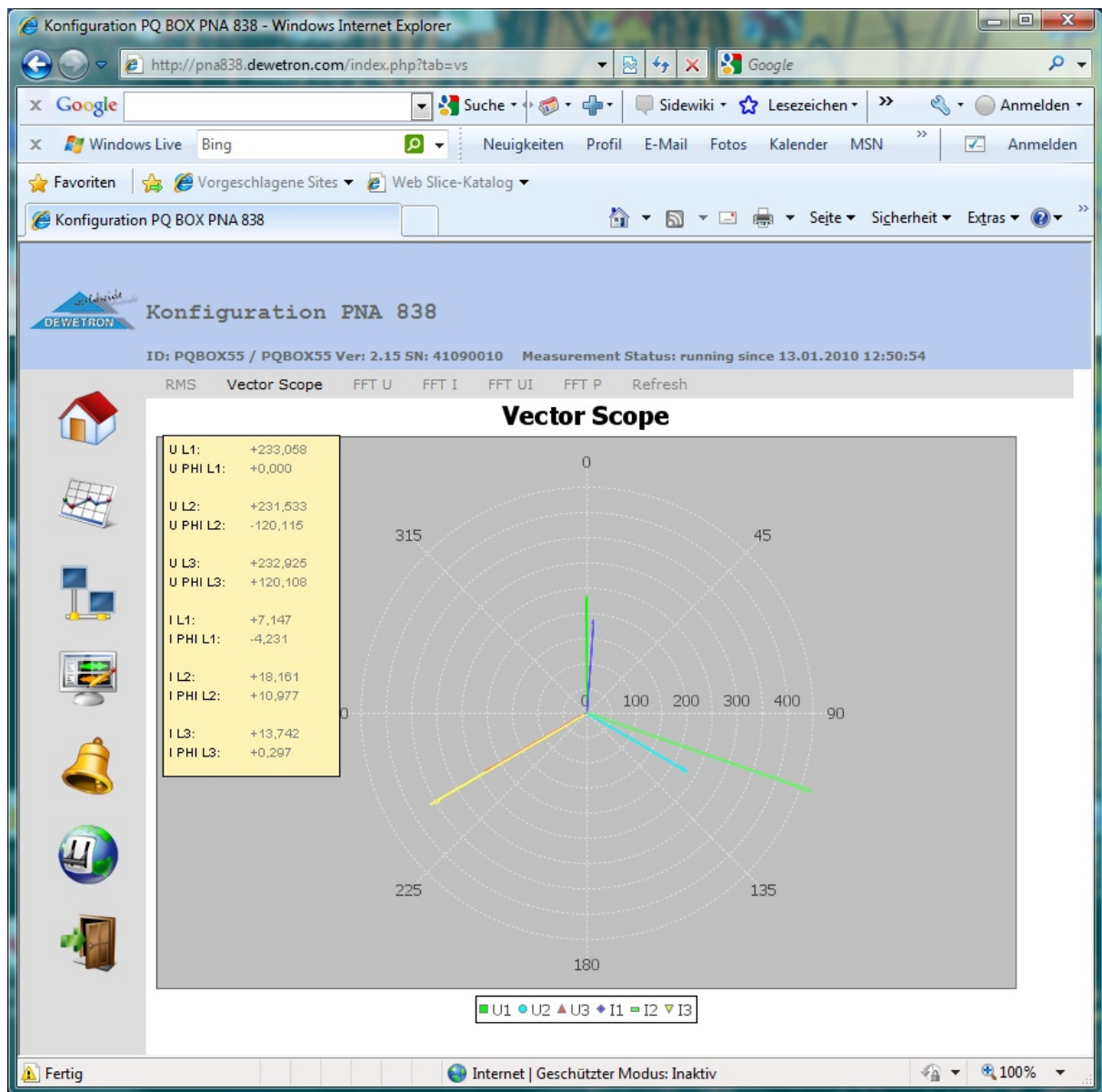


Depending on the type of instrument the presentation of data can vary.
 Thus, the PNA-V lacks the values of current and power.
 The type PNA-W also shows the wind direction and velocity.



3.1.2 vectorscope

On the vectorscope voltages and currents can be viewed as vectors. Additionally, you receive the RMS values and the corresponding angles.



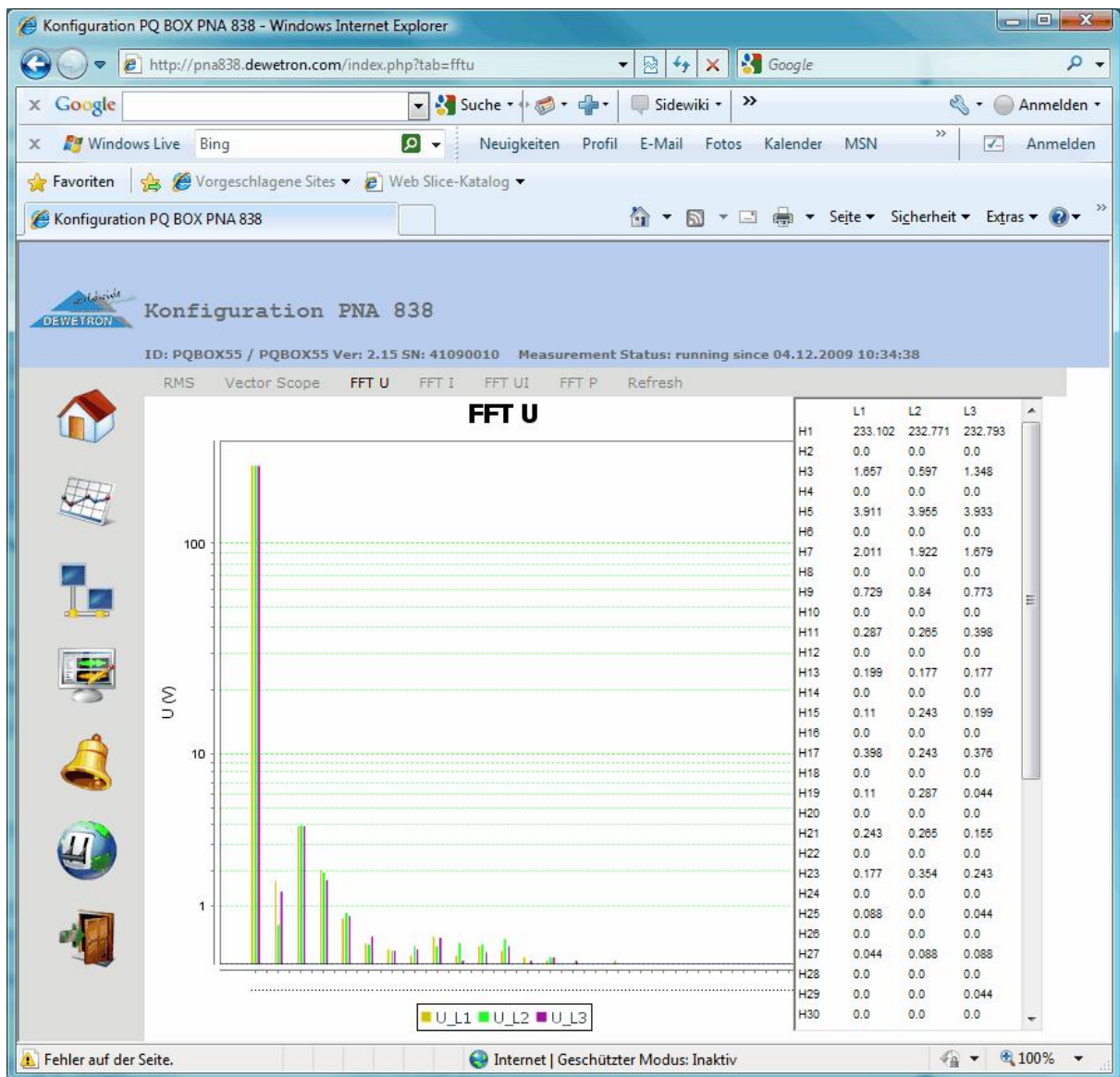
3.1.3 FFT

The FFT diagram shows the harmonics.

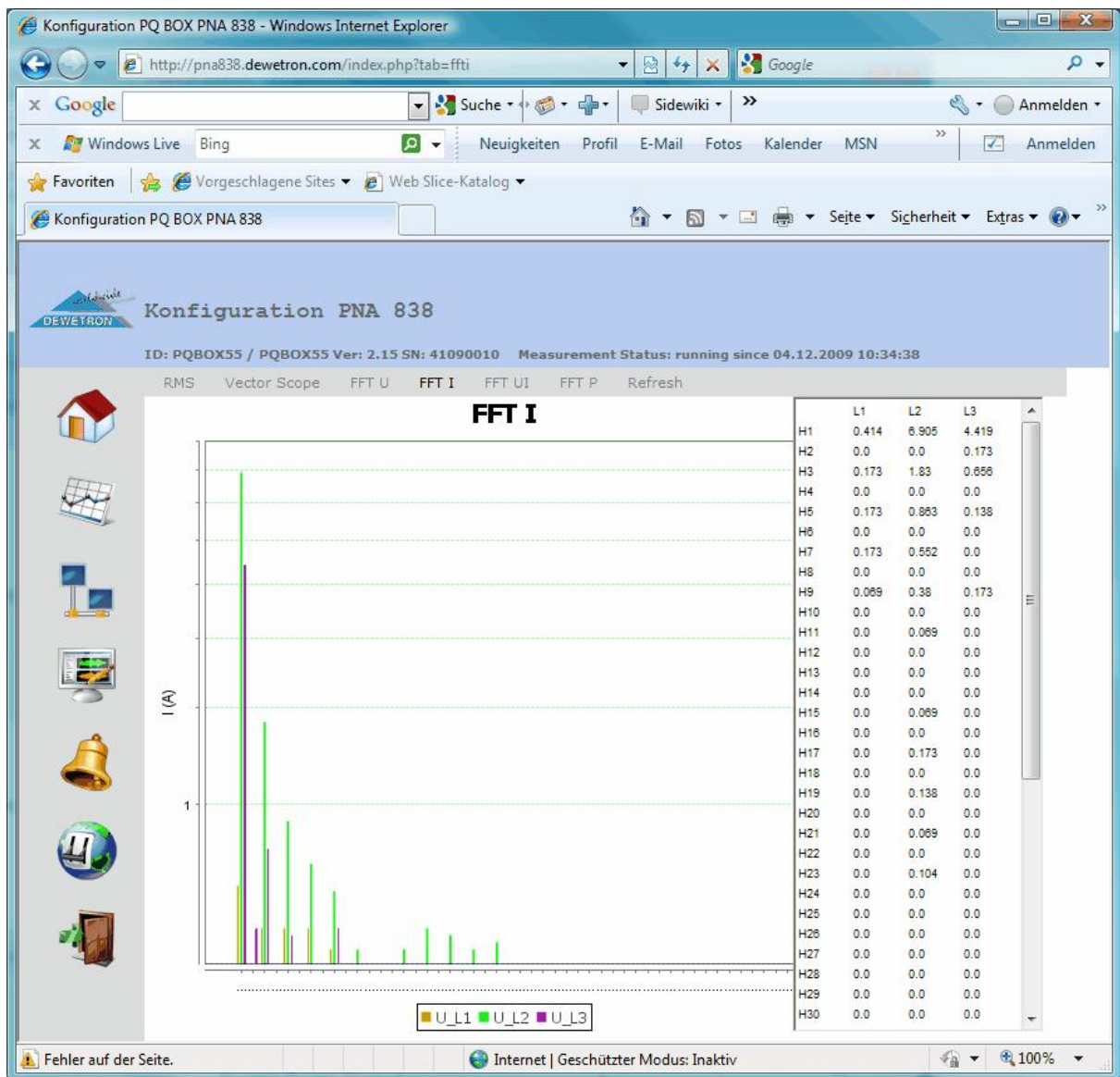
The calculation of these values is done according to the harmonics standard IEC 61000-4-7.

Voltages, currents and power can be illustrated:

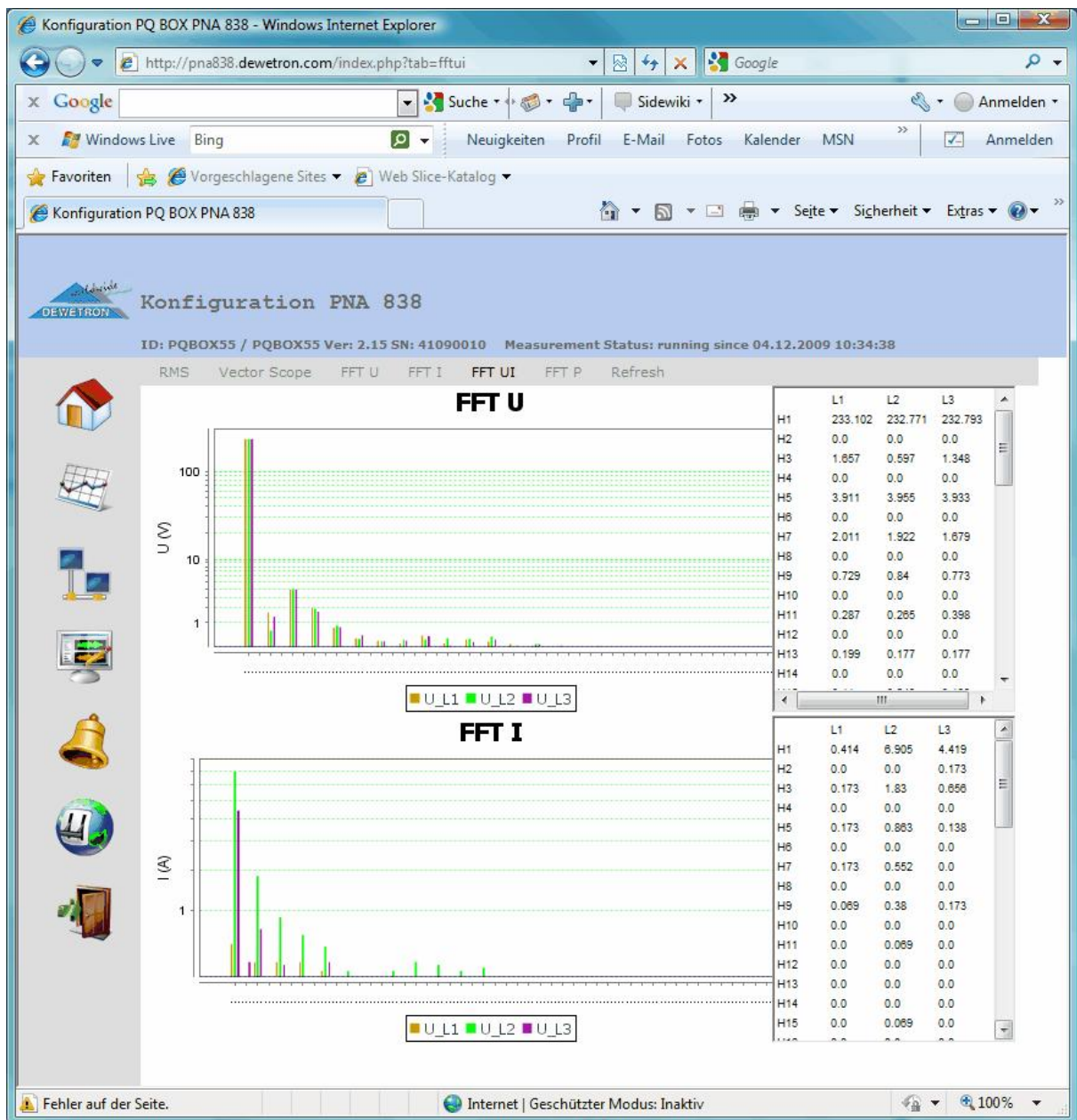
FFT U: FFT of voltages



FFT I: FFT of currents

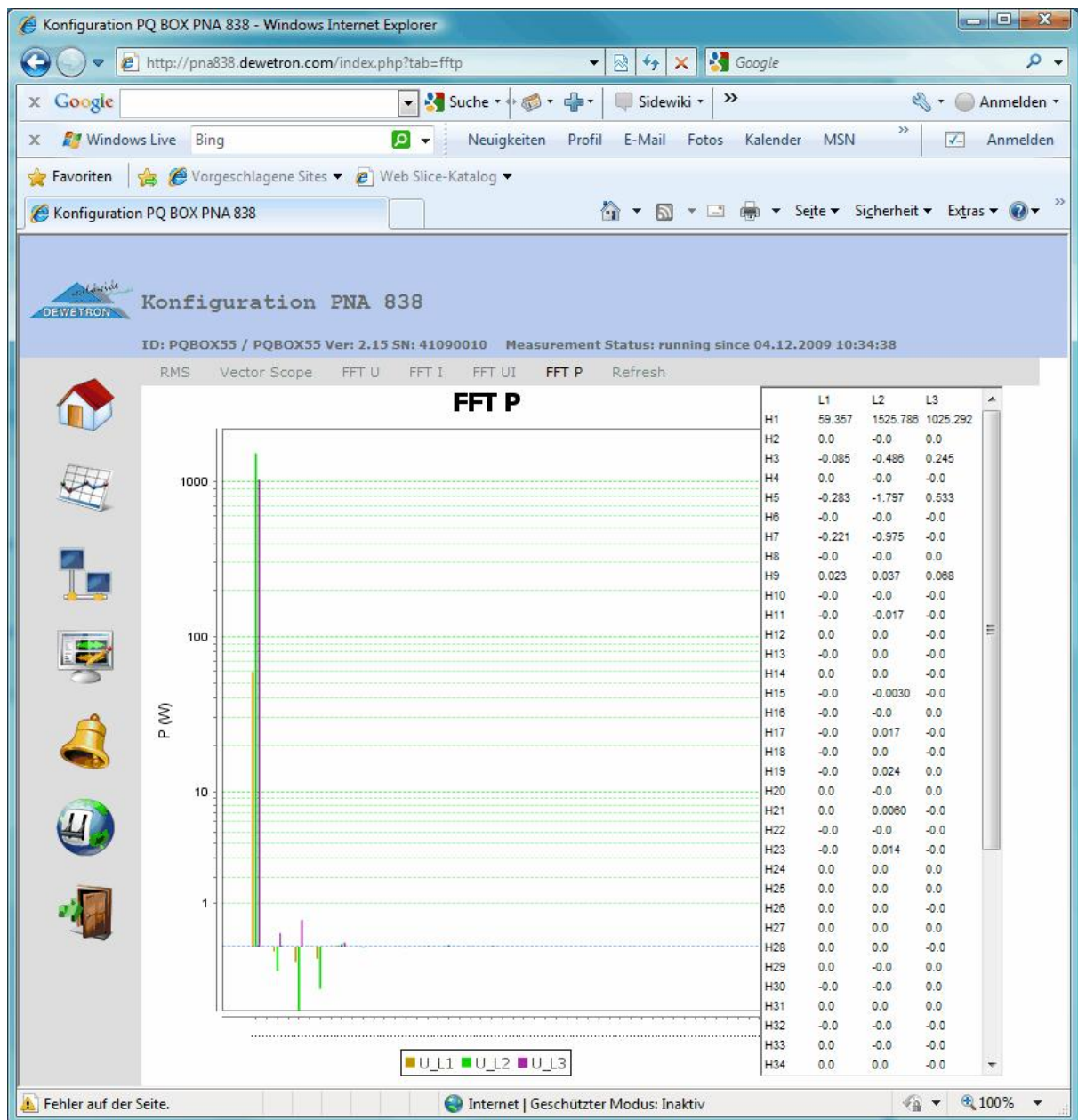


FFT UI: FFT of voltages (top) and currents (bottom)



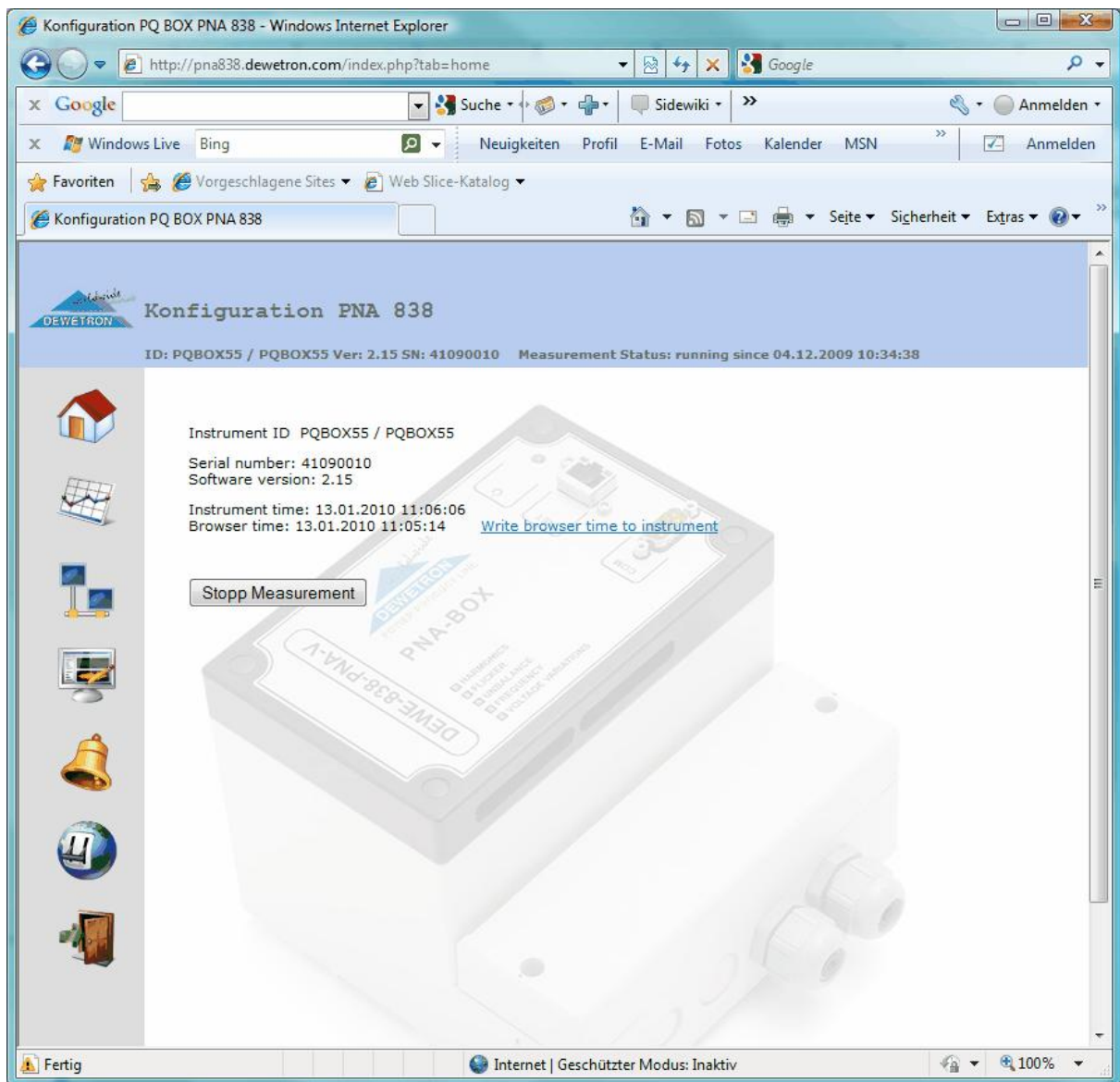
FFT P: FFT of active power

The following diagram shows that, in this case, positive power is drawn above zero and negative power is drawn below zero.



3.2 configuration

When you are logged in as "administrator" (admin) you see the following start screen depending on the status of the instrument (measurement started/stopped):



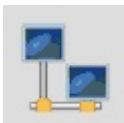
The individual buttons offer the following functions:



...to the start menu (above)



...to the online diagram of the data



...network settings



...settings of the transducer and transducer factors



...alarms and fault records



...configuration of different measurement values



...you log off and get to the login menu

Stop Measurement

...start or stop the measurement

[Write browser time to instrument](#)

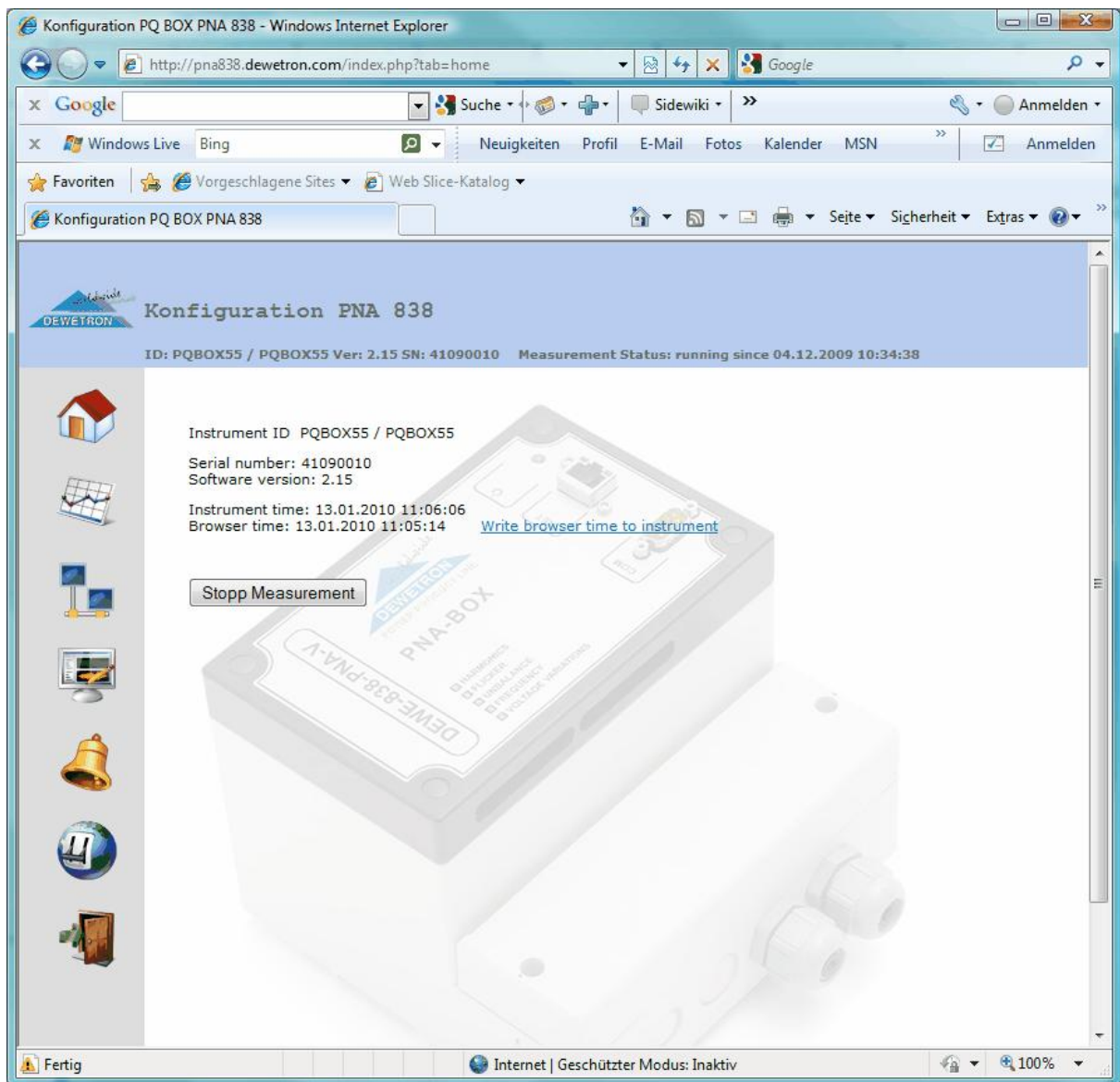
...synchronisation of the time on the measurement instrument

[File uploaden](#)

...upgrading the firmware

3.2.1 starting and stopping the measurement

On the login screen you have the possibility to stop the measurement when it has been running (see window below) or start the measurement when it was stopped before (second window).

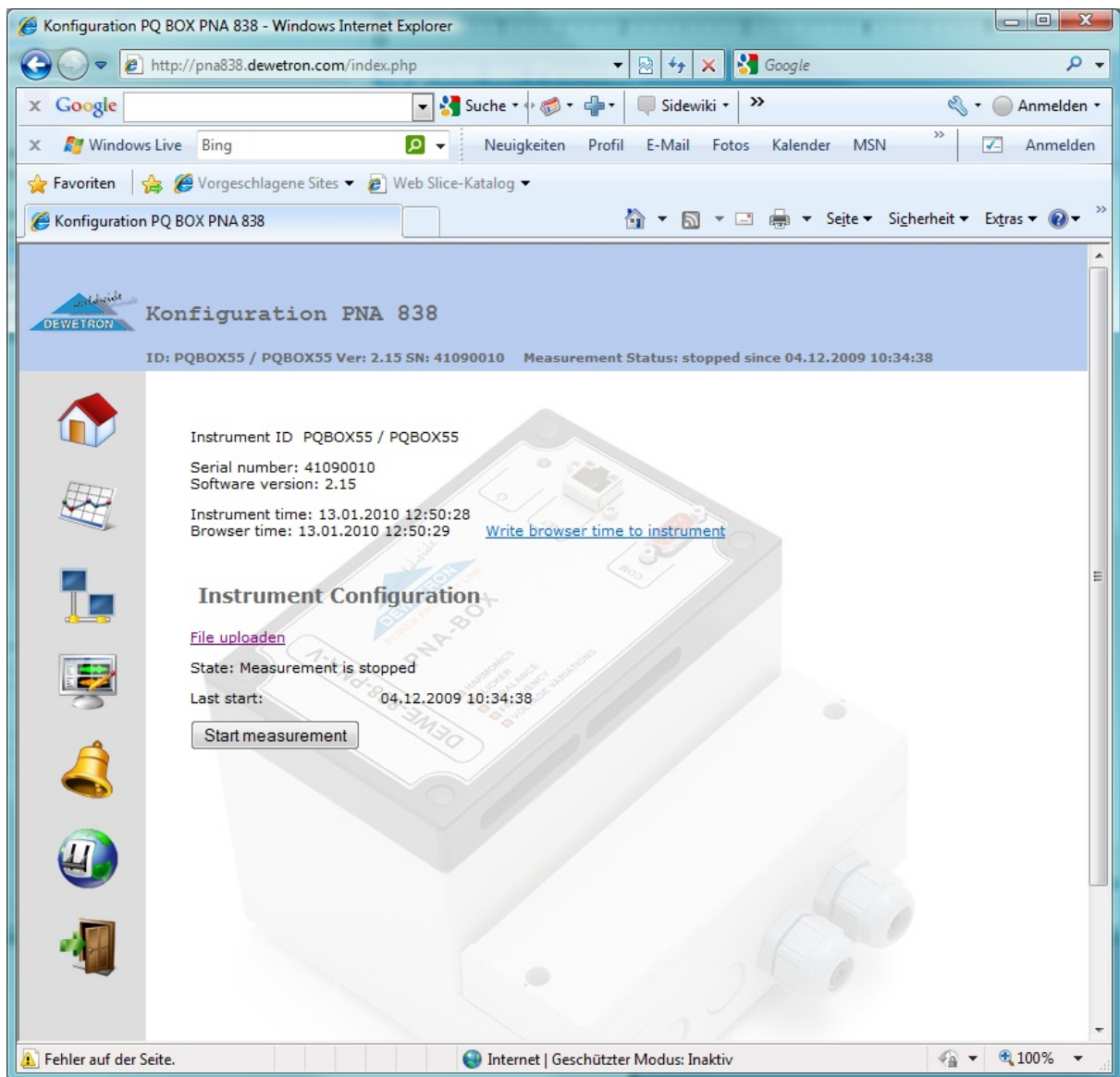


In both cases you can synchronise the time with the clock of the PC:

[Write browser time to instrument](#)

When the measurement was stopped you can upgrade the firmware:

[File uploaden](#)



3.2.2 network settings

The network settings are made according to TCP/IP common standards whereas you can insert network name or network address in the fields.

Konfiguration PQ BOX PNA 838 - Windows Internet Explorer

http://pna838.dewetron.com/index.php?tab=system

Konfiguration PNA 838

ID: PQBOX55 / PQBOX55 Ver: 2.15 SN: 41090010 Measurement Status: running since 04.12.2009 10:34:38

System

DHCP: ☒

Hostname: PQBOX55

IP Mask: 255.255.255.0

DNS 1: 195.58.160.194

NTP Server: 192.168.0.2

Data server: 192.168.40.25

IP Address: 192.168.40.56

Default Gateway: 192.168.40.254

DNS 2: 195.58.161.122

☒ Activate data transfer

Save

DHCP: if you want to use DHCP, this field must be chosen

hostname: network name of your measuring instrument

IP address: network address if you do not use DHCP

IP mask: network mask

default gateway: your gateway in the network

DNS 1: domain name system 1

DNS 2: domain name system 2

NTP server: network time server (see time synchronisation of the measuring instrument)

data server: PMT server if you want to transfer the data automatically

activate data transfer: this box must be chosen in order to have the data automatically transferred

save: saves the settings (generally new settings are taken over after restarting the measurement)

3.2.3 transducer factors and transducers

If transducers are used together with the measuring instruments, you can list them here. If no transducers are used, the setting remains 1 or 0 respectively for the offset.

Depending on the type of instrument the settings are different:

PNA-838-V
PNA-838-P
PNA-838-W

3.2.3.1 PNA-838-V

Konfiguration PQ BOX PNA 838 - Windows Internet Explorer

http://getyoursolution.com/index.php?tab=analog

Konfiguration PNA 838

ID: PQBOX52 / PQBOX52 Ver: 2.32 SN: 1234 Measurement Status: running since 13.01.2010 09:35:48

Analog

U1	Primary scale: 1	Secondary: 1	Offset: 0
U2	Primary scale: 1	Secondary: 1	Offset: 0
U3	Primary scale: 1	Secondary: 1	Offset: 1

Save

Internet | Geschützter Modus: Inaktiv

If voltage transducers are used, you can list them here:

If no voltage transducers are used, the setting remains 1 or 0 respectively for the offset.

primary scale: the primary voltage of the transducer
 secondary scale: the secondary voltage of the transducer
 offset: a possible offset

example:

transducer 20 kV / 100 V

primary scale: 20000
 secondary scale: 100
 offset: 0

save: saves the settings (generally new settings are taken over after restarting the measurement)

3.2.3.2 PNA-838-P

Konfiguration PNA 838

ID: PQBOX55 / PQBOX55 Ver: 2.15 SN: 41090010 Measurement Status: running since 04.12.2009 10:34:38

Analog (Power-Mode)

☒ Current

	Primary scale:	Secondary:	Offset:
U1	1	1	0
U2	1	1	0
U3	1	1	1
Ue	1	1	0
I1	1	1	0
I2	1	1	0
I3	1	1	0
Ie	1	1	0

☒ Ue Ie

Save

Fertig

Internet | Geschützter Modus: Inaktiv

If voltage transducers or current transducers are used, you can list them here:
If no voltage or current transducers are used, the setting remains 1 or 0 respectively for the offset.

primary scale: the primary voltage of the transducer
secondary scale: the secondary voltage of the transducer
offset: a possible offset

example:

transducer 20 kV / 100 V

primary scale: 20000
secondary scale: 100
offset: 0

save: saves the settings (generally new settings are taken over after restarting the measurement)

3.2.3.3 PNA-838-W

Konfiguration PQ BOX PNA 838 W - Windows Internet Explorer

http://getyoursolution.com/index.php?tab=analog

Konfiguration PNA 838 W

ID: PQBOX52 / PQBOX52 Ver: 2.32 SN: 1234 Measurement Status: running since 13.01.2010 15:03:17

Analog (Power-Mode)

☒ Current

U1 Primary scale:	1	Secondary:	1	Offset:	0
U2 Primary scale:	1	Secondary:	1	Offset:	0
U3 Primary scale:	1	Secondary:	1	Offset:	1
I1 Primary scale:	1	Secondary:	1	Offset:	0
I2 Primary scale:	1	Secondary:	1	Offset:	0
I3 Primary scale:	1	Secondary:	1	Offset:	0
Wind speed scale [ms/v]:	1			Offset[ms]:	0
Wind dir scale [deg/v]:	1			Offset[deg]:	0

Save

If voltage transducers or current transducers are used, you can list them here:
 If no voltage or current transducers are used, the setting remains 1 or 0 respectively for the offset.

primary scale: the primary voltage of the transducer
 secondary scale: the secondary voltage of the transducer
 offset: a possible offset

example:

transducer 20 kV / 100 V

primary scale: 20000
 secondary scale: 100
 offset: 0

For the wind parameters you have to list the scaling and a possible offset:

wind speed: the sensor scaling in m/s / V

offset: in m/s

wind direction: the sensor scaling in degree / V

offset: in V

save: saves the settings (generally new settings are taken over after restarting the measurement)

3.2.4 alarms and fault records

Here the settings for the fault recorder functions can be made:

Konfiguration PQ BOX PNA 838 - Windows Internet Explorer

http://pna838.dewetron.com/index.php?tab=alarme

Konfiguration PNA 838

ID: PQBOX55 / PQBOX55 Ver: 2.15 SN: 41090010 Measurement Status: running since 04.12.2009 10:34:38

Alarms

a) Storage time

Pretime [ms]: 1000 Posttime [ms]: 3000 ☐ Posttime extension

Max. trigger time [ms]: 10000

b) Trigger storage:

☐ no values ☐ 10ms period values ☒ Raw data

c) Limits

☒ **Relativ**

Start limits in % of nominal voltage Lower limit: 90 Upper limit: 110

Stop limits in % of nominal voltage Lower limit: 92 Upper limit: 108

Voltage variations in % of nominal voltage 5

☐ **Absolut**

Start limits Lower limit: 207 Upper limit: 253

Stop limits Lower limit: 211.6 Upper limit: 248.4

Voltage variations [V] 11.5

Save

Internet | Geschützter Modus: Inaktiv

The functions of the parameters are:

a) storage time: the duration of the record in case of a fault

Pretime: the time of record BEFORE the fault happened in ms: here 1000ms = 1 second

Posttime: the time of record AFTER the fault ended in ms: here 3000ms = 3 seconds

Max. trigger time: the maximum storage time of a fault in ms: here 10000ms = 10 seconds

Posttime extension: If this box is checked and if a new fault happens during the posttime the counting of the posttime starts again. The maximum duration (max trigger time) will stay the same.

b) trigger storage: how the data shall be stored

no values: no data are stored, but the event of start and stop of the fault.

10 ms RMS values: the half period values (RMS, AVG) are stored (e.g. 10ms @ 50Hz)

raw data: all data in the original sampling speed are stored (10 kHz)

c) limits: the limits which cause a fault record

relative/absolute: in general there is a difference between relative data (% of nominal voltage) and absolute data (in V)

For the recording of a voltage band event (window trigger) the following data are required:

Start limit: The start limit for the fault recording.

Stop limit: The stop limit for the fault recording

Upper Limit: The upper limit (over voltage, swell)

Lower Limit: The lower limit (voltage sag)

For the recording of a rapide voltage change (RVC, rms to rms value) the following data are required:

voltage variation: the value of the maximum allowed voltage change. The recording is stopped immediately after the event (plus posttime).

save: saves the settings (generally new settings are taken over after restarting the measurement)

3.2.5 calculated values

Here is to define which data shall be calculated and how they shall be stored.

Konfiguration PNA 838

ID: PQBOX55 / PQBOX55 Ver: 2.15 SN: 41090010 Measurement Status: running since 04.12.2009 10:34:38

Power (Power-Mode)

Instrument ID: 55 Modul name: PQBOX55

Grid type: 3 Phase star Nominal voltage [V]: 230

Nominal frequency[Hz]: 50 Number of cycles: 10

☒ Save Currents ☒ Ue Ie

☒ THD: 40

☒ Phase angle

☒ P.Q.

☒ Interharmonics

☒ Impedance

☒ Flicker

PST Time [m]: 10 PLT Time [h]: 2

Storage interval [s]: 61 ☒ at rounded time stamps

F. Storage interval [s]: 12

☒ Signal voltages

Frequency [Hz]: 214

Storage interval [s]: 4

Save

Fertig Internet | Geschützter Modus: Inaktiv 100%

Instrument ID: a number, which will be used later in the post processing software (PMT) for identification of the data. This number must be **UNIQUE** for each instrument Module Name: The name of the measurement, which will be used later in the evaluation software (e.g.: feeder line, location,...)

Grid type: The connection schematic

1 phase: single phase

3 phase star: 3 phase star (typically in the low voltage grid)

3 phase delta: 3 phase connection in star, but evaluation in delta (typically in medium and high voltage grids)

Nominal voltage: Nominal value of the voltage

Nominal frequency: Nominal value of the frequency

Number of cycles: Number of cycles for the harmonics calculation (typically 10 according the harmonics standard IEC 61000-4-7)

save currents: if currents shall be measured as well (only -P and -W version).

Ue Ie: if the 4th phase shall be measured as well (neutral voltage and current, only -P Version)

Harmonics: if harmonics shall be calculated and stored as well (according IEC 61000-4-7)
THD: Total Harmonic Distortion. The number defines up to which harmonic the calculation shall be made (40 according the standard)
Phase Angle: if phase angles of harmonics shall be stored.
P, Q: if active and reactive power of harmonics shall be stored.
Interharmonics: if interharmonics shall be stored.
Impedance: if load impedances of harmonics shall be stored.

Flicker: if flicker shall be calculated and stored. (according IEC 61000-4-15)
Pst time: duration of the short term flicker (10 minutes according the standard)
Plt time: duration of the long term flicker (2 hours = 12 Pst values... according the standard)

storage interval [s]: storage interval of the data (typically 600 seconds)
f. storage interval [s]: storage interval of the frequency data (typically 10 seconds)
at rounded time stamps: if data shall be stored at multiples of full hours (storing exactly at 12:00, 12:10, 12:20 etc.. according IEC 61000-4-30 Class A)

signal voltages: if signal voltages shall be calculated.
Frequency: Signal frequency in Hz.
storage interval: storage interval of the signal voltages (typically 3 seconds)

save: saves the settings (generally new settings are taken over after restarting the measurement)


3.2.6 time synchronisation of the measuring instrument

The instrument can be synchronised to a reference time in two different ways:

1) manual during connection with the web browser:

(recommended for not permanent installed instruments)

If you are logged in as administrator you will find the following information on the start screen about the time settings on the instrument:



Instrument time: 13.01.2010 11:06:06
Browser time: 13.01.2010 11:05:14 [Write browser time to instrument](#)

Click on "write browser time to instrument" to synchronise the time from your computer to the instrument.

2) with a network time server (NTP)

(recommended for permanent installed instruments)

In large networks or also in the internet there are several time servers available. They can be queried via NTP (network time protokol).

In the general Network settings you can define the time server and then instrument is permanently synchronised to this time source.

NTP Server:

192.168.0.2

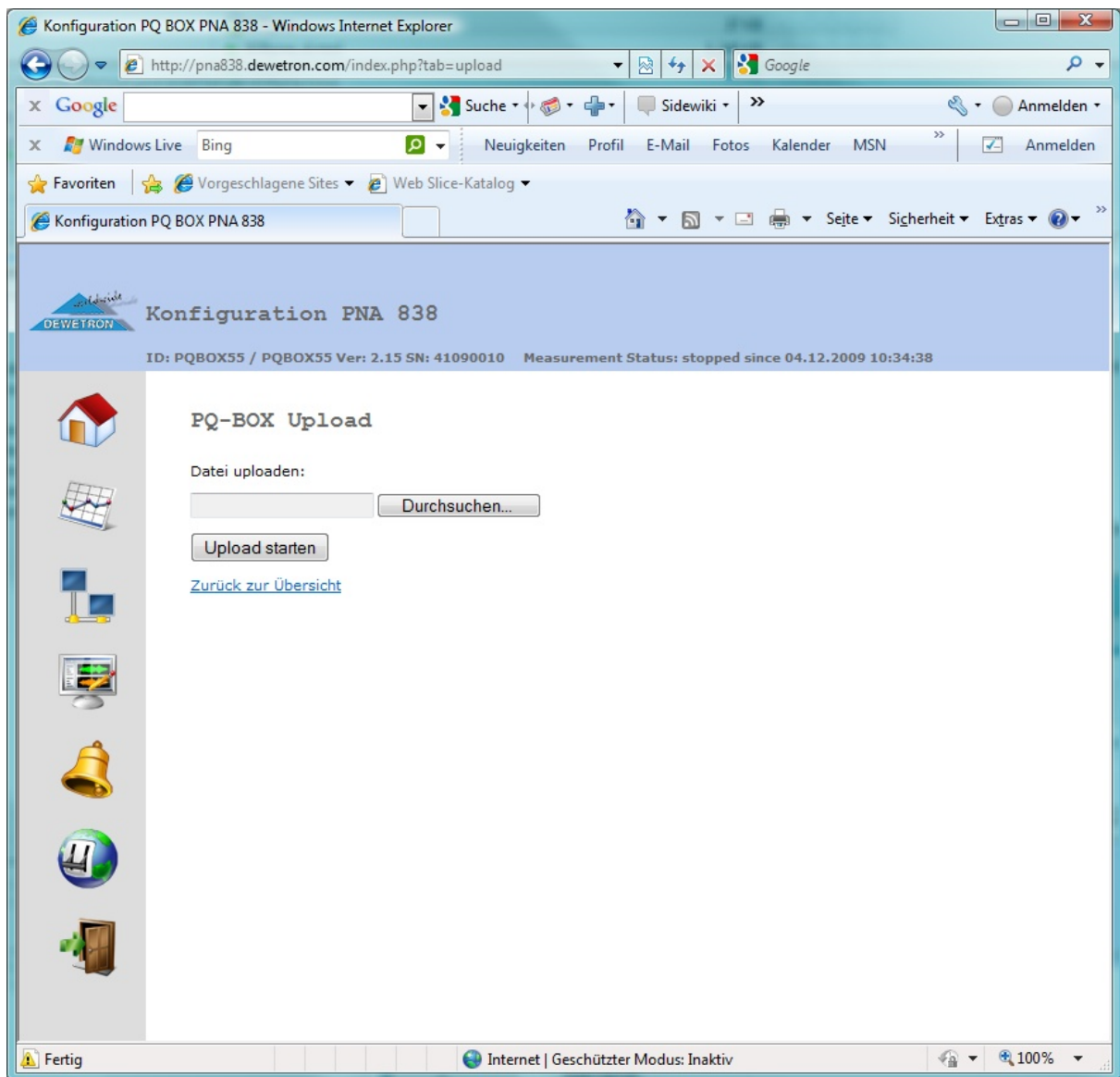
3.2.7 upgrading the firmware

For upgrading the firmware please follow these steps:

- 1) copy the upgrade file to your computer (where the web browser is started)
- 2) connect to the instrument as administrator
- 3) if the measurement is running stop it
- 4) at the start page you will find the following part:



- 5) click on "File uploaden"
- 6) define the file to upload



- 7) click on "Upload starten"
- 8) Go back to the overview
- 9) restart the measurement

The measurement starts with the new firmware.

3.3 transferring data

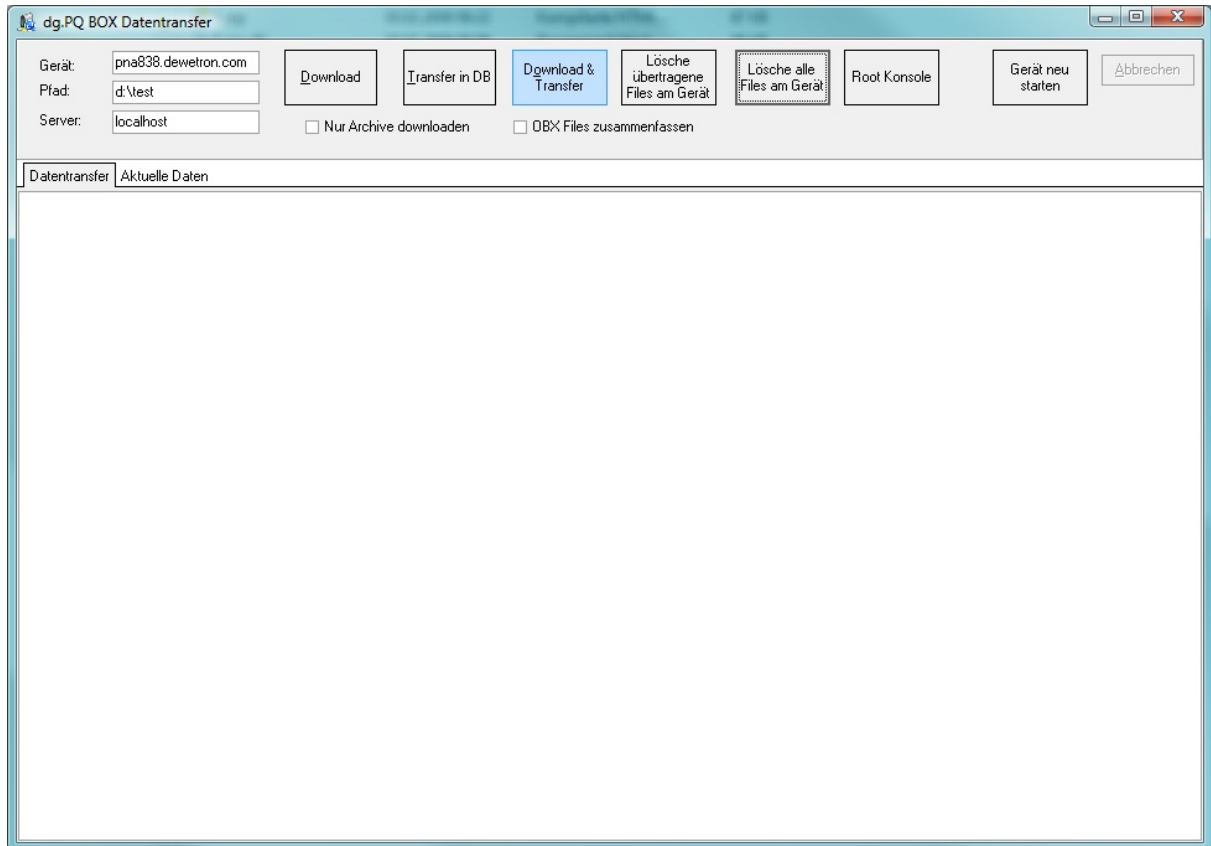
For the data transfer there are two possibilities:

- | | |
|---------------|--|
| Manually | (for instruments without a network connection to a PMT-Server) |
| Automatically | (for instruments with a permanent network connection to a PMT-Server) |

3.3.1 manual transmission of data

For the manual transfer of data you have to install the programme "dataloader" on the computer from which the data should be queried.

After starting the programme the following screen appears:



The menu in detail:

Datentransfer

...shows the status of the data transfer, e.g. which data have been transferred

Aktuelle Daten

...shows the current data that are being measured on the measuring instrument

Gerät: pna838.dewetron.com


...you have to insert the IP address or the network name of the measuring instrument which should be queried

Pfad: d:\test

...you have to insert the local data directory in which the data should be buffered

Server: localhost


...server name or network name of the PMT server (Appserver).

A rectangular button with a thin black border and the text "Download" in a standard sans-serif font.


...starts the data transfer from the measuring instrument to the local computer. The status is shown in the window below.

☐ Nur Archive downloaden

...In order to speed up the data transfer the measuring instrument packs the data into an archive file every 6 hours. When this option is chosen, only these archives are transferred. The last 6 hours at the maximum remain on the measuring instrument (increased performance for long-term measurements).

A rectangular button with a thin black border and the text "Transfer in DB" in a standard sans-serif font.

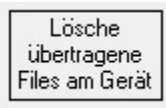
...starts the data transfer from the local computer to the PMT server. The status is again shown in the window below.

A rectangular button with a thin black border and the text "Download & Transfer" in a standard sans-serif font.

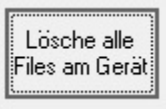
...carries out the data transfer from the measurement instrument to the computer and further on to the server in one go

☐ OBX Files zusammenfassen


...In order to speed up the data transfer you have the possibility to merge the data files. When having a lot of small measurement data files you can speed up the data transfer to the database.

A rectangular button with a thin black border and the text "Löschen übertragene Files am Gerät" in a standard sans-serif font.

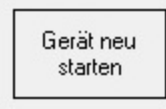
....deletes the data on the instrument that have already been transferred

A rectangular button with a thin black border and the text "Löschen alle Files am Gerät" in a standard sans-serif font.

....deletes all data files on the measuring instrument

A rectangular button with a thin black border and the text "Root Konsole" in a standard sans-serif font.

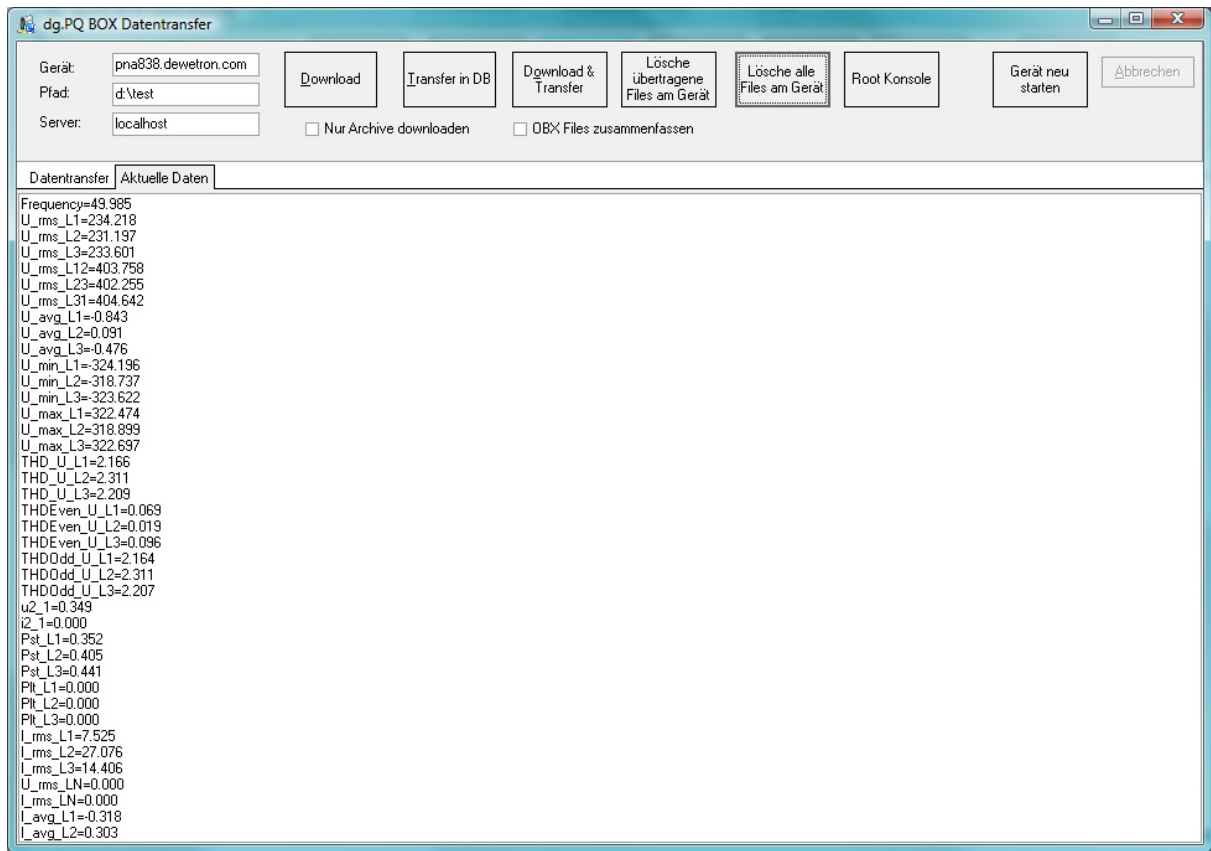
...opens a telnet session with the measuring instrument

A rectangular button with a thin black border and the text "Gerät neu starten" in a standard sans-serif font.

...restarts the measuring instrument

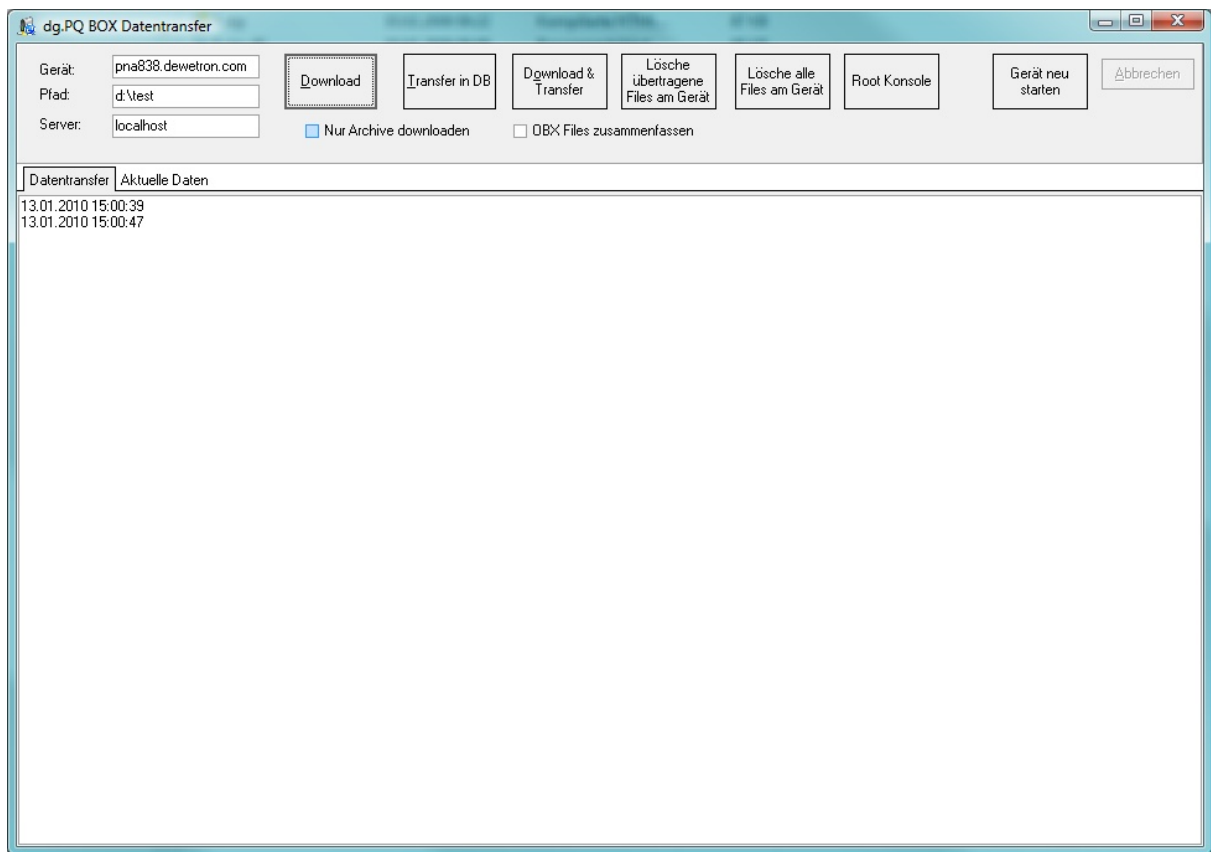
3.3.1.1 view current data

In this window the actual data of the instrument are shown.



3.3.1.2 status of the data transfer

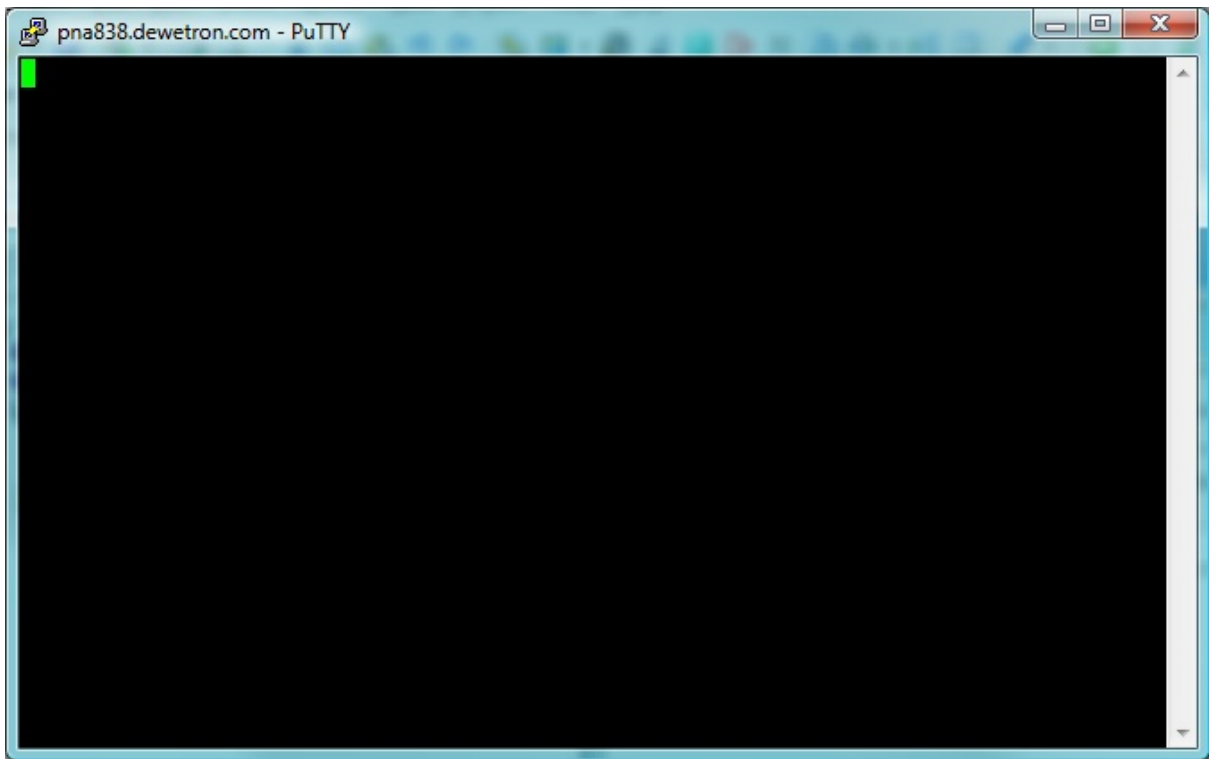
In this window the status of the transfer is shown. In this example two sets of data have been transferred.



3.3.1.3 remote access for maintenance

With the help of a telnet session system commands can be carried out on a measuring instrument

Attention: Only carry out this operation if you exactly know what to do - you can otherwise damage the measuring instrument.



3.3.2 automatic transmission of data

For the automatic transmission of data you have to arrange the following settings in the network settings:

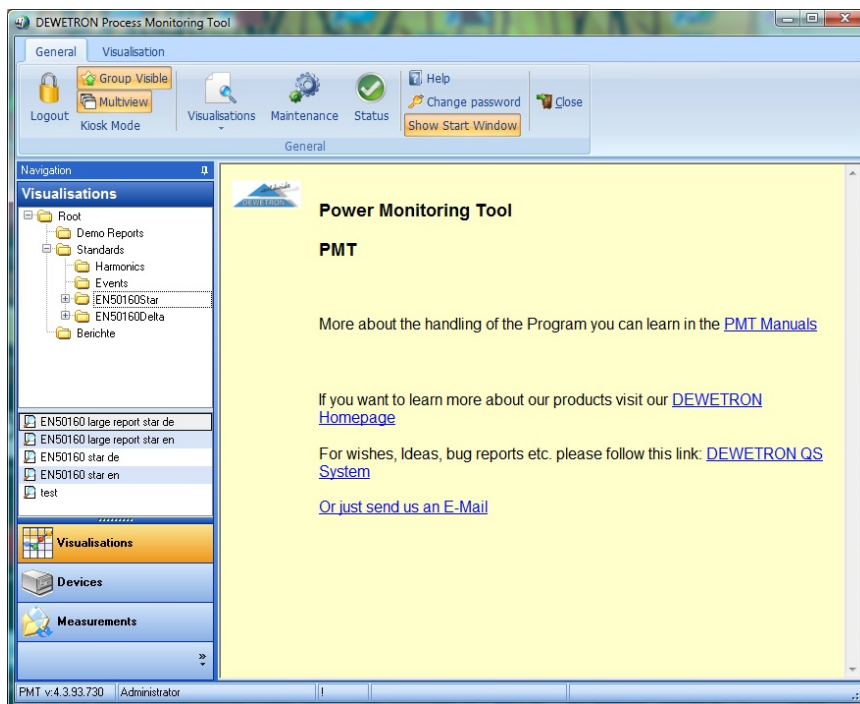
Data server: ☒ Activate data transfer

data server ... the network address or the name of the PMT server (AppServer)

activate data transfer ... activates the automatic transfer of data to the PMT server

3.4 data evaluation with PMT

The evaluation of data is carried out with the provided software package PMT.



Please, find a detailed description as regards operation and handling in our manual and on the Power Home Page respectively.

Under the following link:

http://power.dewetron.com/html/Manuals/PMT4_e/index.html